The Current Claims:

No claims were amended. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.(previously presented): A method for decoding image data for a hardcopy document, comprising:

recording a scanned representation of the hardcopy document that includes a primary set of symbol data and a secondary set of encoding data; the primary set of symbol data providing a first channel of human readable information rendered on the hardcopy document; the secondary set of encoding data providing a second channel of machine readable information rendered on the hardcopy document;

receiving a decoded form of the scanned representation of the hardcopy document from a decoding module to define a candidate set of symbol data; and

rewriting, independent of the decoding module, the candidate set of symbol data using an event library and the secondary set of encoding data; the event library identifying likely failures encountered when the scanned representation of the hardcopy document is decoded; the event library comprising a rule that represents a transformation.

2.(original): The method according to claim 1, wherein said rewriting further comprises computing a shortest path of a product graph of the candidate set of symbol data and the secondary set of encoding data.

3.(original): The method according to claim 2, wherein said computing is performed using a shortest path computation.

4.(original): The method according to claim 3, wherein the shortest path computation comprises a two-pass dynamic programming computation.

5.(original): The method according to claim 4, wherein the product graph is defined by:

defining nodes that correspond to both position in the candidate set of symbol data and the secondary set of encoding data; and

defining arcs that satisfy the candidate set of symbol data and the secondary set of encoding data.

6.(original): The method according to claim 5, wherein the product graph is further defined by matching symbols in the candidate set of symbol data with events from an event library.

7.(original): The method according to claim 1, wherein the decoding module performs dynamic programming to decode the scanned representation of the hardcopy document.

8.(original): The method according to claim 1, wherein the secondary set of encoding data is encoded using one of separation coding, block coding, and convolution coding.

9.(original): The method according to claim 1, wherein the decoded form of the scanned representation includes certainty estimates of the candidate set of symbol data.

10.(previously presented): An apparatus for decoding image data for a hardcopy document, comprising:

means for recording a scanned representation of the hardcopy document that includes a primary set of symbol data and a secondary set of encoding data; the primary set of symbol data providing a first channel of human readable information rendered on the hardcopy document; the secondary set of encoding data providing a second channel of machine readable information rendered on the hardcopy document;

means for receiving a decoded form of the scanned representation of the hardcopy document from a decoding module to define a candidate set of symbol data; and

means for rewriting, independent of the decoding module, the candidate set of symbol data using an event library and the secondary set of encoding data; the event library identifying likely failures encountered when the scanned representation of the hardcopy document is decoded; the event library comprising a rule that represents a transformation.

11.(previously presented): An apparatus for decoding image data for a hardcopy document, comprising:

a scanner for recording a scanned representation of the hardcopy document that includes a primary set of symbol data and a secondary set of encoding data; the primary set of symbol data providing a first channel of human readable information rendered on the hardcopy document; the secondary set of encoding data providing a second channel of machine readable information rendered on the hardcopy document;

a decoding module coupled to the scanner for providing a decoded form of the scanned representation of the hardcopy document to define a candidate set of symbol data; and

a rewrite module for rewriting, independent of the decoding module, the candidate set of symbol data using an event library and the secondary set of encoding data; the event library identifying likely failures encountered when the scanned representation of the hardcopy document is decoded; the event library comprising a rule that represents a transformation.

12.(previously presented): The apparatus according to claim 11, further comprising a module for decoding the secondary set of encoding data for use by the rewrite module.

13.(previously presented): The apparatus according to claim 11, further comprising a module for decoding and decompressing the secondary set of encoding data for use by the rewrite module.

14.(previously presented): The apparatus according to claim 11, wherein said rewrite module further comprises means for computing a shortest path of a product graph of the candidate set of symbol data and the secondary set of encoding data.

15.(previously presented): The apparatus according to claim 14, wherein said computing means performs a shortest path computation that includes a two-pass dynamic programming computation.

16.(previously presented): The apparatus according to claim 15, wherein the product graph is defined by:

nodes that correspond to both position in the candidate set of symbol data and the secondary set of encoding data; and

arcs that satisfy the candidate set of symbol data and the secondary set of encoding data.

17.(previously presented): The apparatus according to claim 16, wherein the product graph is further defined by symbols in the candidate set of symbol data that are matched with events from an event library.

18.(previously presented): The apparatus according to claim 11, wherein the rewrite module performs dynamic programming to decode the scanned representation of the hardcopy document.

19.(previously presented): The apparatus according to claim 11, wherein the secondary set of encoding data is encoded using one of separation coding, block coding, and convolution coding.

20.(previously presented): The apparatus according to claim 11, wherein the decoded form of the scanned representation includes certainty estimates of the candidate set of symbol data.